(2), RVF post cardiac surgery (1), RVF post LVAD implantation (2) and RVF post acute myocardial infarction (1). All patients were in cardiogenic shock prior to Impella RP implant.The percutaneous implant of the device was feasible and successful in 100% of the patients. The support time ranged from 1 to 9 days, with more than 60% of the patients being supported for longer than 4 days (median of 6.5 days) and explanted upon RV recovery. The average flow was 3.9 L/min. Overall thirty-day survival was 83%.
Conclusions: A novel percutaneous right ventricular assist device has been developed. The design was enhanced after the first implant to improve torque-ability and push-ability which resulted in an ease of placement for the subsequent patients. The preliminary clinical experience is very encouraging and further evaluation is ongoing.

TCT-372

Coronary artery disease in patients with reduced left ventricular systolic function treated with medicine, surgery, or percutaneous coronary intervention: a retrospective review of outcomes within a multicenter healthcare system

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Background: Patients with multivessel coronary artery disease (CAD) and reduced left ventricular ejection fraction (LVEF) are at risk for significant morbidity and mortality. There is limited data comparing medical therapy, coronary artery bypass graft surgery (CABG), and percutaneous coronary intervention (PCI) in patients with CAD and LVEF ≤35%. The current study evaluates the clinical characteristics and outcomes for patients with significant CAD and reduced LVEF treated with medical therapy, CABG, or PCI.
Methods: A retrospective analysis was conducted on consecutive patients in the Sutter Health System in Northern California without prior CABG who underwent coronary angiography between 1/1/2003 and 12/31/2009 and were found to have LVEF ≤35% and significant CAD (left main stenosis 50% or greater, proximal LAD stenosis 70% or greater, or 70% stenosis in 2 or more major epicardial vessels). Patients undergoing emergent cardiac catheterization were excluded. A Cox proportional hazards regression analysis was performed to compare medical therapy, CABG, and PCI for the outcome of long-term survival, adjusting for baseline demographic and clinical characteristics. The Social Security death index was used to assess long-term mortality.
Results: 1345 patients with CAD and reduced LVEF were identified: 498 had PCI, 493 had CABG, and 354 received medical therapy alone. Patients receiving medical therapy alone were more likely to be female, have a history of myocardial infarction, and have a history of heart failure (p<0.001). In-hospital mortality rates for the CABG, PCI, and medical therapy groups were similar (6.7% vs. 5.4% vs. 9.0 %; p=0.118). The 5-year adjusted survival for the CABG, PCI, and medical therapy cohorts was 76%, 65%, and 52%, respectively (p=0.0001).
Conclusions: In a large hospital network, patients with CAD and reduced LVEF had improved long-term mortality when treated with revascularization (CABG or PCI) compared with medical therapy alone. Notably, patients with CAD and reduced LVEF had improved long-term mortality when treated with PCI compared with medical therapy. Further studies are warranted regarding the optimal treatment for patients with CAD and reduced LVEF.

TCT-373

Impact of Epicardial Fat Volume on Coronary Artery Disease in Symptomatic Patients with a Zero Calcium Score

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Background: Prevalence of coronary artery disease (CAD) is not fully elucidated in symptomatic patients with a zero calcium score (CS) by computed tomography (CT). Epicardial fat volume (EFV) has been suggested as a predictor of CAD. The aim of our study is to investigate the prevalance of CAD and the impact of EFV on CAD in symptomatic patients with a zero CS with multislice CT (MSCT).
Methods: In this study, 1308 consecutive symptomatic patients who underwent 64-slice MSCT with a zero CS were evaluated. EFV was quantified with CS data sets. Presence of an obstructive plaque (diameter stenosis>50%) and a CT-derived vulnerable plaque, which was defined as a plaque with remodeling index>1.10 and mean CT density value <30Hounsfield Units, was assessed with a CT coronary angiography.
Results: Obstructive plaques were detected in 86 patients (7%) and CT-derived vulnerable plaques in 63 (5%). EFV was larger in patients with obstructive plaques than no plaque (124.3±43.2cm3 vs. 95.1±40.3cm3; p<0.01). Patients with CT-derived vulnerable plaques had a greater amount of EFV than no plaque (133.0±40.2cm3 vs. 95.1±40.3cm3; p<0.01). Multivariate analysis revealed EFV as a predictor of the presence of an obstructive and a CT-derived vulnerable plaque (per 10cm3; Odds ratio (OR) 1.10; 95% confidence interval (CI), 1.04-1.16; p<0.01 and OR 1.19; 95% CI, 1.12-1.27; p<0.01). The combination of EFV and Framingham risk score (FRS) resulted in an area under the receiver-operating characteristic curve for prediction of obstructive and CT-derived vulnerable plaque of 0.75 and 0.75, which was significantly higher than 0.68 and 0.64 for FRS alone (p= 0.02 and p<0.01).
Conclusions: A zero CS doesn't exclude CAD and EFV can be a useful marker of CAD in symptomatic zero CS patients.

TCT-374

Long-term Survival and Neurological Outcome of In-hospital Cardiac Arrest Patients Rescued by Extracorporeal Cardiopulmonary Resuscitation

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Background: The immediate clinical benefit of extracorporeal cardiopulmonary resuscitation (E-CPR) has been proved in short-term follow-up studies. However, it has been not known whether the benefit of E-CPR persists for more than 1 year. We compared the long-term outcomes of patients who received E-CPR or conventional CPR (C-CPR) and investigated the clinical characteristics of long-term survivors.
Methods: We analyzed a total of 406 adult in-hospital cardiac arrest victims received CPR for more than 10 minutes from 2003 to 2009. The long-term survival and neurological outcome of E-CPR (n=85) and C-CPR (n=321) were compared using propensity score-matched analysis.
Results: The 2-year survival with minimal neurological impairment was 4-fold higher in E-CPR group than C-CPR group (23.5% versus 5.9%, hazard ratio (HR) = 0.57, 95% confidence interval (CI) = 0.43–0.75, p<0.001) by unadjusted analysis. After propensity-score matching, it was still 4-fold higher in E-CPR group than C-CPR group (20.0% versus 5.0%, HR=0.53, 95% CI=0.36–0.80, p=0.002). In the E-CPR group, the independent predictors associated with minimal neurological impairment were age ≤65 years (HR=0.46; 95% CI=0.26–0.81; p=0.008), CPR duration ≤35 min (HR=0.37; 95% CI=0.18–0.76; p=0.007), and subsequent cardiovascular intervention including coronary intervention or cardiac surgery (HR=0.36; 95% CI=0.18–0.68; p=0.002).
Conclusions: The initial survival benefit of E-CPR for cardiac arrest patients was maintained at 2 year.

TCT-375

Optimizing Rotational Atherectomy in High-Risk Percutaneous Coronary Interventions. Insights from the PROTECT II study

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Background: Rotational Atherectomy (RA) is currently recommended for heavily calcified lesions in which standard percutaneous coronary intervention (PCI) techniques would result in suboptimal stent expansion. We sought to determine the optimal RA use associated with minimal incidence of myonecrosis in patients undergoing high-risk PCI supported by either intraaortic balloon (IABP) or microaxial flow pumps (Impella).
Methods: We performed a subgroup analysis of patients treated with RA in the PROTECT II trial. The objective was to examine the relationship between myonecrosis and the technical parameters burr size, number of passes/patient/lesion, and RA time. Peri-procedural myocardial infarction (MI) was defined in the study as increase of CK-MB or Troponin >3xULN. Continuous variables were expressed as means ±SD. A P value <0.05 was considered significant.
Results: RA was used in 52 patients of the 448 PROTECT II patients (11.6%). Compared to patients treated without RA, patients undergoing RA were older (72 vs. 67 yo, p<0.001), were more likely to have heart failure (96% vs. 86%, p=0.04), prior CABG (48 vs. 32%, p=0.02), higher STS score (8.1 vs. 5.7, p=0.04), and higher Syntax score (40 vs. 29, p<0.0001). Myonecrosis occurred in 25% of RA cases. Of note, lesion length was similar in patients with and without myonecrosis (39 vs. 38 mm, p=0.96). Prolonged RA time was associated with increased incidence of periprocedural myonecrosis (Table).

Variable	MI (n=12)	No MI (n=40)	p value
Burr size (mm)	1.7±0.25	1.6 ± 0.2	0.18
Number of passes/lesion	3.0 ± 1.7	2.7 ± 1.9	0.36
Number of passes/patient	6.4 ± 3.6	4.7 ± 3.8	0.15
RA time (seconds)	85.9 ± 53.8	55.3 ± 47.2	0.03

Conclusions: RA continues to be utilized in high-risk PCI procedures. Our study suggests that longer RA time is associated with myonecrosis in patients undergoing high-risk PCI. Optimal RA technique must balance the risk of myonecrosis against the imperative to achieve a good luminal result.

TCT-376

SIMPLIPHieDE Study - Single center IMPella LVAD supported Pci in High Risk group of patients – Detroit Medical Center Experience – Clinical Outcomes

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Background: Advances in percutaneous interventional techniques and technology have made percutaneous coronary intervention (PCI) for left main and or triple vessel disease a viable option. Left main intervention was re-classified in the recent ACC guidelines from III to IIb based on the large randomized Syntax trial. Though patients with high syntax score still continue to benefit from CABG, in "real-world" clinical practice patients